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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,576	09/30/2003	Andrew J. Kempton	84699 3028 KAW	1620
20736	7590	12/29/2005		
MANELLI DENISON & SELTER 2000 M STREET NW SUITE 700 WASHINGTON, DC 20036-3307			EXAMINER COLON SANTANA, EDUARDO	
			ART UNIT 2837	PAPER NUMBER

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/673,576	<b>Applicant(s)</b> KEMPTON ET AL.	
	<b>Examiner</b> Eduardo Colon Santana	<b>Art Unit</b> 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/30/2003</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> .                 |

**DETAILED ACTION**

***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on 9/30/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

***Oath/Declaration***

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: The full name of each inventor (family name and at least one given name together with any initial) has not been set forth. Inventor Jeremy Astley is missing his first name in the declaration.

***Drawings***

3. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Art Unit: 2837

**Specification**

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

**Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

4. The disclosure is objected to because of the following informalities: The disclosure does not include section headings.

Appropriate correction is required.

***Claim Objections***

5. The claims are objected to because the lines are crowded too closely together, making reading difficult. Substitute claims with lines one and one-half or double spaced on good quality paper are required. See 37 CFR 1.52(b).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 states a passive acoustic liner system having a mode-scattering segment and a sound-absorbing segment providing a reactance between -12 and -2 pc and -1 and 0 pc, without defining "pc" in the claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-7, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kraft et al. U.S. Patent No. 5,498,127.

Referring to claim 1, Kraft et al. discloses an active liner (see all figures and respective portions of the specification). Kraft et al. further describes in figure 1, an acoustic panel (22) as an active liner (24) for attenuating a sound field, wherein the liner (24) is divided in two segments: a mode-scattering segment (28) as a piezoelectric panel and a sound-absorbing segment (22a, 22b, 22c) as a high frequency panel. Furthermore, Kraft et al. provides a discontinuity in the segments such that mode scattering of the sound field enables the sound-absorbing segment to further absorb the scattered sound. Moreover, Kraft et al. discloses that acoustic impedance<sup>1</sup> may be determined for passively attenuating noise at selected frequencies and that the active liner (24) may be readily configured or tuned for attenuating sound at any suitable frequency (see Col. 3, lines 42-60).

Although Kraft et al. only describes an example (Col. 4, lines 29-45) wherein a reactance of -0.4 is obtained for suppressing a 5<sup>th</sup> order multiple pure tone at 354 Hz, Kraft does not explicitly describes that the segments provide a reactance between -12 and 0 pc.

It would have been an obvious design choice to one having ordinary skill in the art at the time the invention was made to use conventional analytical procedures as Kraft et al. teaches for obtaining optimum values of acoustic impedance<sup>1</sup>, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only

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<sup>1</sup> Resistance part and Reactance Part.

routine skill in the art. See *In re Aller*, 105 USPQ 233 and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 2, Kraft et al. discloses that the corresponding acoustic panel (22) is conventionally sized for effecting the required acoustic impedance<sup>1</sup> for passively attenuating specific frequencies of sound (see Col. 3, lines 52-56).

Referring to claims 3-5 and 9, Kraft et al. states that the acoustic impedance for attenuating specific frequencies of sounds depends on the size (thickness) and length of the panels. From figure 2, it can be depicted a larger thickness and length for the sound absorbing segment (22) than for the mode scattering segment (28) thereby providing a reactance discontinuity. As for the percentage (%), specific thickness (mm) or specific length, Kraft et al. only discloses examples (see Col. 4-6), making the claimed invention an obvious design choice to one ordinary skill in the art, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

As to claims 6 and 7, Kraft et al. depicts from figure 2, a mode scattering segment (28) and sound absorbing segment (22) having porous face sheets (22a and 28b) respectively exposed to the sound field; a layer of cells (22b, 28) and a impervious sheet (22c, 28a).

Referring to claims 10 and 11, see figure 1, in which a gas turbine engine (10) is depicted comprising an acoustic liner (22), the engine having a duct through which sound field emanates and the liner

system is disposed to the radially inner wall of the duct. Furthermore, figure 1, depicts a nacelle (12) including an inlet duct (16) and obviously having an intake or bypass duct in which air flows downstream.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kraft et al. as applied to claims 1-7 above, and further in view of Clark U.S. Patent Application No. 2003/0098200 A1.

Referring to claim 8, Kraft et al. addresses the limitations of claims 1-7, and describe that a mode scattering segment (28) and sound absorbing segment (22) have a porous face sheet (22a and 28b) respectively exposed to the sound field. However, even though it is well known in the art to use fibrous or foam materials on a porous layer of an acoustic liner, Kraft does not mention it. On the other hand, Clark discloses an acoustical absorptive splitter (see figure 4), wherein a porous material 52, such as fibrous materials can be used (see page 3, par. 0032). It would have been obvious to one of ordinary skill in the art at the time of the invention to use fibrous materials as taught by the well known art and Clark, within the teaching of Kraft et al. for the advantages that the fibrous materials would withstand the gas heated factors and the sound absorption criteria.



**Conclusion**

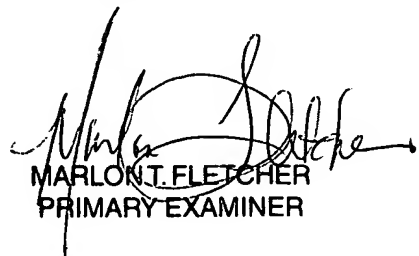
9. The prior art made of record in form 892 and not specifically relied upon is considered pertinent to applicant's disclosure to further show the state of the art. See in particular Farquhar et al. U.S. Patent No. 4,192,336.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Colon Santana whose telephone number is (571) 272-2060. The examiner can normally be reached on Monday thru Thursday 6:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Martin can be reached on (571) 272-2800 X.37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ECS  
December 15, 2005

  
MARLON T. FLETCHER  
PRIMARY EXAMINER